



EUROPEAN ORGANIZATION FOR NUCLEAR RESEARCH  
ORGANISATION EUROPÉENNE POUR LA RECHERCHE NUCLÉAIRE

## **CERN - ST Division**

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### **THE ACCELERATED PROCEDURE FOR ELECTRICAL WORK (TPA)**

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#### **Abstract**

The accelerated procedure for electrical work [in French: Travaux électriques selon Procédure Accélérée (TPA)] was introduced in October 1996. It allows the contractor to carry out minor electrical installation jobs (about 350 a year) independently. The special features of the TPA are that the number of hours to be worked is limited to 16 and the cost to less than 1000 CHF. This procedure has substantial advantages for both the requesters and ST division. Firstly, the requester benefits from direct contact with the contractor, prompt action and simplified invoicing. In addition, ST division, relieved of ordinary minor work, can concentrate on larger-scale projects and can take advantage of a simplified system of administration. The author sets out the course of the procedure, its advantages and drawbacks, the statistics and the results of a satisfaction questionnaire. This procedure could be adapted and extended to other operations linked to future contracts.

## **1 INTRODUCTION**

In October 1996, a few months after the award of the new electricity contract C137, CERN and the contractor introduced the TPA procedure. TPA stands for 'accelerated procedure for electrical work' (in French: Travaux selon Procédure Accélérée). This procedure applies to minor electrical work with a limited price (1000 CHF) and a limited number of working hours (16 h), usually performed in buildings such as offices, laboratories or workshops, where the contractor, applying the international electricity standards, is perfectly capable of working completely independently.

This document covers the following items :

- What is 'TPA'?
- The importance of the TPA
- The TPA procedure
- Advantages and disadvantages
- TPA restrictions
- Feedback from users via a questionnaire
- Conclusion and a possible extension of the TPA.

## **2 WHAT IS 'TPA'?**

TPA is minor electrical work carried out according to a given procedure which covers the handling of a large number of requests for minor modifications to electrical installations. Examples of such work are:

- modifying a lighting installation of an office,
- adding an electrical socket in an office or corridor for computers or photocopiers,
- fitting a terminal strip on a rack,
- adding an electrical heater.

## **3 THE IMPORTANCE OF THE TPA**

Alone, each of these minor electrical jobs is not very extensive but, taken together, they make up over 20% of the total annual number of operations in the contract. In total, there are about 350 minor work requests per year. ST/TFM handles about 250 of these requests and the rest are handled by ST/EL. Because of this large quantity and, to avoid loss of time with administration or co-ordination, it is very important for the ST division to have this work carried out in the most effective way, which is also an advantage for the user.

Because a great deal of these jobs are executed in office buildings during working hours, they must be performed discretely. The main aim is to respond quickly to a large number of requests and to comply with the client's request. The work should be carried out properly, within the requested time, and the price should be kept low. Therefore the contractor and ST division regard the TPA as the contractor's 'visiting card'.

## 4 THE TPA PROCEDURE

### T.P.A. FLOW CHART

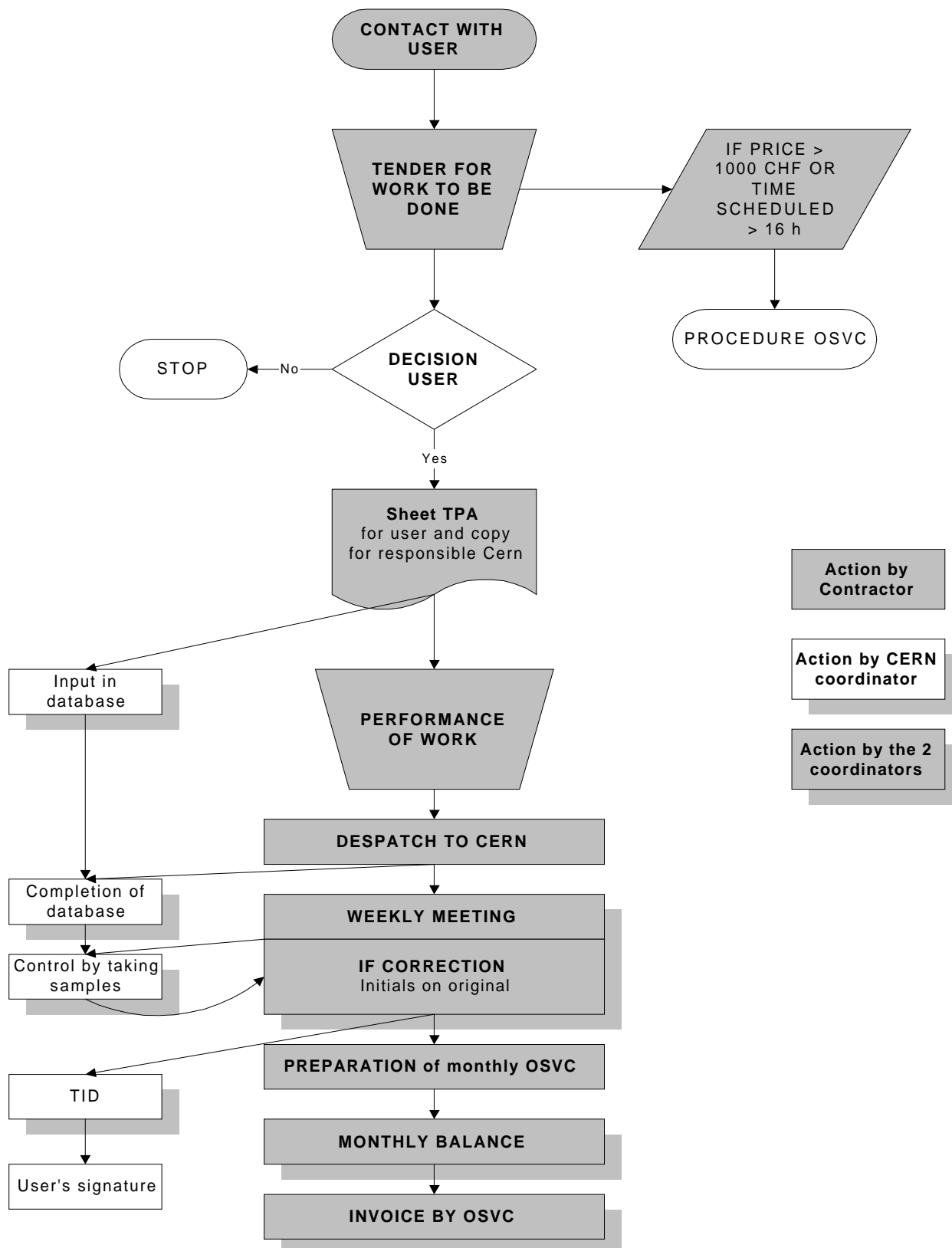


Figure 1: TPA flow chart.

#### **4.1 How it works – see flow chart (Fig. 1)**

The user may contact the contractor's coordinator directly. These two persons will reach an agreement on the technical and financial matters and the time limit. The work will be carried out accordingly. The CERN coordinator receives a copy of the tender but will receive the TPA sheet (Appendices 1 & 2) only after the work has been completed. On the TPA sheet the contractor indicates the client's name, division, group, telephone, budget code, and a full description of the work done. Also noted are the date of the intervention and the name of the electrician. In two columns, the number of hours worked and the material used are noted, and the final amount is calculated.

During the weekly meeting of the two coordinators, each TPA is discussed and accepted by the CERN coordinator. Random checks are made to verify the work. Ideally, about 20% of the work carried out is checked. After accepting the technical and financial aspects of the work, the CERN coordinator draws up a TID, used as the final bill. The amounts for the material used and the number of hours worked are also written in the TID. The user pays by TID using a budget code especially created for the TPA. This computer signature is the only time the user is required to sign, and his signature also certifies acceptance of the work done. At the end of each month CERN transfers all the TPAs effectuated during that month on to one Job Financial Covering Order (OSVC) drawn up and signed by the CERN coordinator.

#### **4.2 Administrative part of the TPA**

A firm may refuse work for which a Job Order (OS) or OSVC has not been issued. Under a contract, an OSVC that covers the financial aspect of the work to be carried out must be issued. For minor work this would involve about 350 OSVCs per year, and each one of them should be transferred to the contractor before work is started. To prevent paperwork from slowing the 'projects' down, one signed OSVC for the approximate amount of one month's work is always issued. At the end of every month an OSVC is drawn up covering the exact amount of the sum of all the TPAs carried out during that month, and paid by the special 'TPA' budget code. In this way, the number of OSVCs is reduced from about 350 to 12.

The TPA price list is very short and work is invoiced on the basis of time spent. While the price for all the other work done is invoiced using a price list code, the calculation for a TPA is much easier, covering simply the (actual) time spent and the equipment supplied. There is even a short price list for the items invoiced. Minor items such as screws, tubes, fixings, etc., are not directly invoiced. To simplify matters, this equipment is included in the hourly rate, which is about 15% higher than the normal invoiced hour.

### **5 ADVANTAGES AND DISADVANTAGES**

#### **5.1 Advantages**

The most important advantage for CERN is the direct contact between the user and the contractor. This means less involvement of the CERN coordinator, and the user can explain his/her requirements directly to the contractor's coordinator. For ST, the coordinator does not have to deal with a large part of minor work and can concentrate on larger-scale projects.

The user will receive a tender with the cost and expected delivery date; if it is accepted, the work will be carried out accordingly. Obviously, in case of doubts, whether technical or financial, either the user or the contractor may contact the CERN coordinator to settle a problem or discuss the various alternatives.

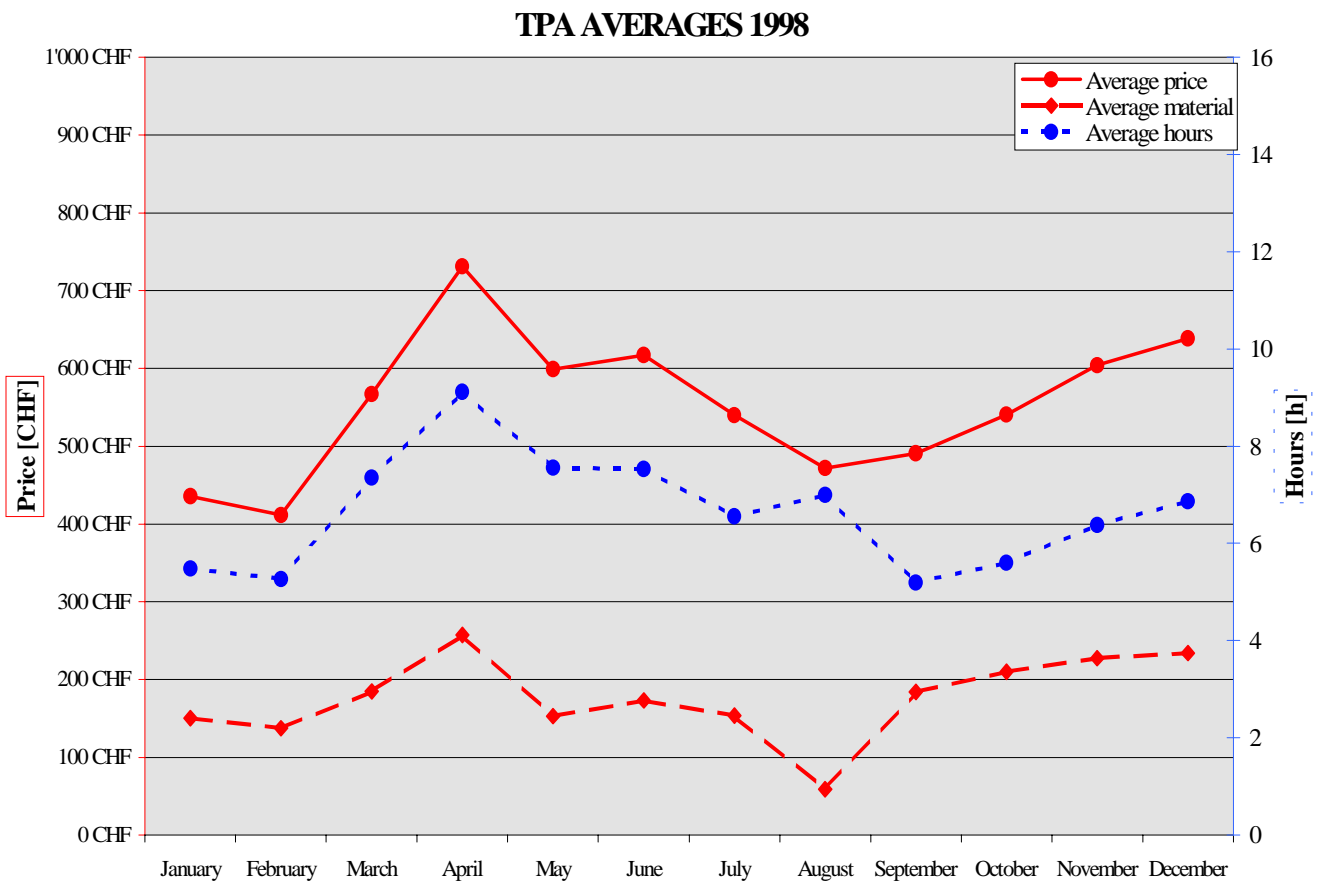
For the TPA to be more efficient the contractor is required to set up a special team. The advantage of a special team is that when absolutely necessary, brief operations can be carried out on the same day as the request.

## 5.2 Disadvantages

The inspections, both technical and financial, made by the CERN coordinator are only partial, owing to the very large number of operations. This saves time, as previously almost all of the work was checked. On the other hand, however, minor technical errors are discovered later on, or, in extreme cases, not at all. Examples of such errors include incorrectly laid cables, unlabelled sockets, etc. The same drawbacks arise when the proposed solution is purely technical whereas a technical-economical solution would be more appropriate, and in cases where the tender covers an excessive number of hours for the work to be done and the user accepts it without objection.

## 5.3 Covering the disadvantages

To ensure an acceptable degree of control over the TPAs, the CERN coordinator reads the TPA sheets carefully and keeps a database with all the TPA's parameters up to date: number of hours worked, the price of equipment, the total price, and also the user's name, budget code and the number of the building/room where the work was done. As many TPAs are of a similar nature, the statistics provided by the database also act as a control. Any change in the average number of hours worked or in prices requires a closer look at the work carried out (Fig. 2).



**Figure 2:** TPA Averages 1998.

## **6 TPA RESTRICTIONS IN THE CONTEXT OF THE CONTRACT**

Electrical contract C137 requires the contractor to set up a quality assurance plan [1]. One of its sections covers the TPA. It sets out how the procedure works and, in particular, when the contractor is not entitled to apply it.

The TPA procedure may not be used in the following cases:

- secured network such as no-break power supplies or uninterruptable power supplies (UPS),
- general emergency switches,
- electricity sub-stations,
- modifications in electrical distribution boxes,
- when supplying staff (contract labour).

These restrictions are applied in order to prevent interventions in places like electrical sub-stations, where work authorizations are required. In these places the knowledge of CERN's ST staff is irreplaceable. Another reason is to ensure better updating of electrical diagrams and drawings. In the OSVC procedure for electrical work CERN has complete control over the decisions to be made before work starts. It is the CERN coordinator who decides the technical and financial matters whereas in the TPA procedure the decisions are made by the user and the contractor.

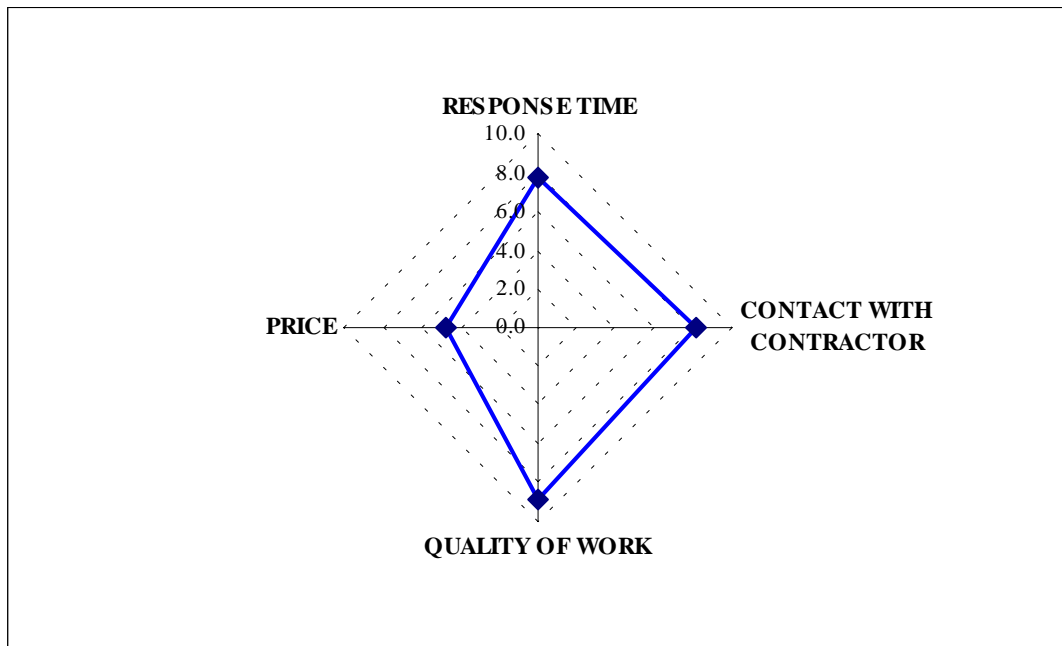
## **7 FEEDBACK FROM USERS VIA A QUESTIONNAIRE**

The nature of the TPA procedure means that the ST/TFM group has little contact with the users for this activity. In order to know their opinion and to obtain feedback concerning the service rendered, CERN's coordinator regularly sends a questionnaire to a number of users immediately after the work has been completed and payment made. Seven questions are asked to discover their opinions about the response time, contact with the contractor, the quality of the work, and the price. The results are stored in a database and may also be used to check how the contractor deals with his customers. The questions are:

- 1 a For job requests made directly to the outside firm, were you satisfied with the response time?  
1 - 10 (1 = very unsatisfied, 10 = highly satisfied)
- 1 b For job requests made to the division (ST), were you satisfied with the response time?  
1 - 10 (1 = very unsatisfied, 10 = highly satisfied)
- 2 Were you satisfied with the time between your first contact and the start of the work?  
1 - 10 (1 = very unsatisfied (too late), 10 = highly satisfied (as agreed))
- 3 Were you satisfied with the first contact with the contractor?  
1 - 10 (1 = very unsatisfied, 10 = highly satisfied)
- 4 Were you satisfied with the way the work was done?  
1 - 10 (1 = very unsatisfied, 10 = highly satisfied)
- 5 What did you think about the price in relation to the work?  
1 - 10 (1 = very expensive, 10 = very cheap)
- 6 Were you satisfied with the administrative part of the work?  
Too complicated, too little information, etc.?  
1 - 10 (1 = very unsatisfied, 10 = highly satisfied)
- 7 Do you feel the need to know more about this procedure for forthcoming job requests?

- A Do you have any suggestions, remarks which could help to improve this procedure?
- B Do you have questions about this procedure?

The results are rather positive. The average overall rating is 7.4 on a scale from 1 (very unsatisfied) to 10 (highly satisfied). The rating for the time taken is 7.7, for reception 8.2, for the quality of work 8.6, and for the price 4.8. We thus found that the users are very satisfied and feel that the costs for the work done are acceptable.



## 8 CONCLUSION AND A POSSIBLE EXTENSION OF THE TPA?

The TPA gives both the contractor and the users a clearly defined degree of freedom, with limited, or even no action on the part of ST division. In fact, the user and contractor are completely free to use their budget as they wish up to a ceiling of 1000 CHF.

This procedure could be introduced in other fields such as painting, ventilation, water systems, etc. Of course the rules would have to be changed and the limitations adapted. For other fields the work is similar to those handled by installers for private customers. There too, it is often the customer (user) who decides the (technical) details and accepts or refuses an offer.

## REFERENCES

- [1] Plan d'assurance qualité (PAQ) NdF 011: Traitement d'une affaire TPA.

ANSALDO INDUSTRIA  
SIE-TRINDEL  
SAUNIER DUVAL ELECTRICITE  
CLEMESSY

Technoparc Pays de Gex  
225 rue Thomas Edison  
69630 St Genis Pouilly

Tél. : 04.50.42.19.22

Fax : 04.50.42.18.36

Tél. CERN : 77033

## ATTACHEMENT Travaux en Procédure Accélérée

FICHE 011.1

Contrat C137/ST

N°	F	I	A	4	9	0	1
TID-EDH N°:							
N° Travaux TECHNOLEC				B B 242			

Exécution rapide des petits travaux d'installations électriques d'un montant maximum de 1000 CHF.

- Le représentant TECHNOLEC propose un montant enveloppe pour les travaux à exécuter.
- Après accord verbal du client, les travaux sont immédiatement réalisés.
- Le présent attachement indiquant le nombre d'heures effectivement passées sur place et la liste du matériel installé est présenté pour signature au responsable TPA CERN, après exécution.

Le prix de l'heure de travail effectif sur place est facturé 59.- CHF. Ce prix comprend le petit matériel d'installation comme tube, telex, fixations, etc., les frais d'encadrement et de déplacement et la mise à jour des plans et bases de données. L'appareillage et les câbles sont décomptés selon liste au verso. Le temps passé par le représentant TECHNOLEC chargé des contacts avec les clients est aussi inclus dans les charges générales du contrat.

Cette procédure n'est pas valable pour un travail d'une durée supérieure à 16 heures.

### IDENTIFICATION CLIENT

Nom: Robertson Prénom: Robert

Division: SC Groupe: DS TEL: 160490 Code budgétaire: 81560

### IDENTIFICATION RESPONSABLE T.P.A. CERN

Nom: COELINGH Prénom: Gert-Jan TEL: Natel 160312

### IDENTIFICATION RESPONSABLE T.P.A. TECHNOLEC

Nom: BOUVIER Prénom: Patrick TEL: Natel 160633

TRAVAUX À EXÉCUTER: Site: SPS Bâtiment: 865 Etage: 1 Pièce: A03.

Reparé sur circuit existant tirage de bus de 352,5 sans foulottes  
pose et raccordement d'une ~~ce~~ ~~pas~~ ~~appare~~ ~~triple~~ (ou avec cliens)  
(pas de différentiel sur circuit vu à Coelmingh) déplacement de une boîte  
test du câble, Reparoje des équipements

(E80252/BCL)

(Les travaux à exécuter doivent être détaillés pour permettre leur utilisation en vue de maintenance)

N d F 011 Annexe 3.1



ANSALDO INDUSTRIA  
SPE-TRINDEL  
SAUNIER DUVAL ELECTRICITE  
CLEMESSY

Technoparc Pays de Gex  
225 rue Thomas Edison  
01630 St Genis Pouilly

Tél. : 04.50.42.19.22

Fax : 04.50.42.18.36

Tél. CERN : 77033

## ATTACHEMENT

### Travaux en Procédure Accélérée

FIGHE 011.1

Temps passé	NOM	ID. CERN	Date	Nbre d'heures
	Perrin	78733	3/12/99	3H
	Barber	74666	6/12/99	1H

Total main d'oeuvre: 4H X 59.-CHF = 236,-

CODE	Matériel installé	Qté	P.U.	Total
F17	Cable 3x2,5 <sup>2</sup>	10m	2	20
G108	PCT43 appareuse	1	20	20
G104	PC triple appareuse	1	40	40

Total matériel: CHF = 60,-

TOTAL MONTANT DES TRAVAUX :

CHF 296,-

#### Information pour le chargé d'affaire CERN

- Fiches d'essais appropriées aux travaux
- Schéma dans l'armoire corrigé au rouge
- Plan Autocad corrigé au rouge
- Corrections dans le dossier "Exploitation CERN"
- Base de données

	OUI	Pas applicable	Date:	Nom / visa
(Exécutant)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	6/12/99	Barber
(Exécutant)	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
(Exécutant)	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
(Resp.TPA)	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
(BE Technolec)	<input type="checkbox"/>	<input checked="" type="checkbox"/>		

ATTESTATION DE CONFORMITE DE DOSSIER DE  
FIN DE TRAVAUX

Date:  
15/12/99

Resp.TPA Technolec:  
BRUNIER

Visa:

#### ACCEPTATION CERN

Responsable TPA CERN

Date:

Visa:

Cocquyt 3/1/00

#### ACCEPTATION TECHNOLEC ( après correction )

Responsable TPA Technolec

Date:

Visa:

N d F 011 Annexe 3.2